

FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION, APRIL 2022

Geology

GEO 4C 07—APPLICATIONS OF REMOTE SENSING AND GIS

(2019 Admission onwards)

Time : Two Hours

Maximum : 60 Marks

Section A

*Answer atleast eight questions.**Each question carries 3 marks.**All questions can be attended.**Overall ceiling 24.*

1. DEM and DTM.
2. Digital Image Processing.
3. Planimetry.
4. Spatial filtering.
5. Unsupervised classification.
6. Nodes.
7. Layering concept.
8. Polygons.
9. Connectivity.
10. Sliver.
11. Cartographic output.
12. CBA of GIS.

(8 × 3 = 24 marks)

Turn over

Section B

Answer atleast five questions.

Each question carries 5 marks.

All questions can be attended.

Overall ceiling 25.

13. Application of remote sensing in Geology.
14. Remote sensing for ocean studies.
15. Pre-processing techniques in GIS digital image processing.
16. Topology and Spatial relationships.
17. GIS data analysis.
18. Keys for a successful GIS.
19. Human resources for GIS.

(5 × 5 = 25 marks)

Section C

Answer any one question.

Each question carries 11 marks.

20. Describe the application of remote sensing in Land use - Land cover mapping and Agriculture.
21. Explain the various sources of errors in GIS.

(1 × 11 = 11 marks)

**FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION
APRIL 2022**

Geology

GEO 4B 07—OPTICAL AND DESCRIPTIVE MINERALOGY

(2019 Admission onwards)

Time : Two Hours

Maximum : 60 Marks

Section A

*Answer at least **eight** questions.*

Each question carries 3 marks.

All questions can be attended.

Overall Ceiling 24.

1. 2V.
2. Nicol prism.
3. Gypsum plate.
4. Fluorite.
5. Isotropic minerals.
6. Total internal reflection.
7. Hornblende.
8. Corundum.
9. Alkali feldspars.
10. Physical properties of topaz.
11. Biaxial minerals.
12. Snell's law.

(8 × 3 = 24 marks)

Turn over

Section B

*Answer at least **five** questions.*

Each question carries 5 marks.

All questions can be attended.

Overall Ceiling 25.

13. Double refraction.
14. Types of extinction.
15. Petrological microscope.
16. Nature of light.
17. Optical properties of pyroxene.
18. Physical properties of feldspathoids.
19. Optical accessories.

(5 × 5 = 25 marks)

Section C

*Answer any **one** question.*

The question carries 11 marks.

20. Optical properties of isotropic and anisotropic minerals.
21. Structure, chemistry, optical and physical properties of Garnet group.

(1 × 11 = 11 marks)

FOURTH SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION, APRIL 2022

Geology

GLY4B07—MINERALOGY

(2014—2018 Admissions)

Time : Three Hours

Maximum : 80 Marks

*Draw neat sketches wherever necessary.***Part A (Objective Type Questions)***Answer all ten questions.**Each question carries 1 mark.*

1. The mineral Quartz shows which type of chemical bonding.
 - a) Van der Waals.
 - b) Ionic.
 - c) Covalent.
 - d) Metallic.
2. Tourmaline is an example of _____ mineral.
 - a) Piezoelectric.
 - b) Pyroelectric.
 - c) Fluorescent.
 - d) Radioactive.
3. The optical property of minerals responsible for the phenomenon of double refraction.
4. An example of a mineral showing marked pleochroism.
5. Which optical property of minerals is determined by the Becke line method ?
6. The type of extinction shown by most prismatic sections of minerals crystallizing in the monoclinic and triclinic systems.
7. The type of silicate structure shown by Olivine group of minerals.
8. Chlorite is a common primary mineral in low-grade regional metamorphic rocks such as _____ .
9. A pseudomorph of compact Quartz after the fibrous mineral Crocidolite.
10. Massive greyish green or brownish grey variety of talc having a greasy or soapy feel.

(10 × 1 = 10 marks)

Turn over

Part B (Short Answer Type Questions)

*Answer any ten questions.
Each question carries 2 marks.*

11. Periodic table.
12. Pseudomorphism.
13. Total internal reflection.
14. Plane polarization.
15. Polaroid.
16. Isotropic minerals.
17. Optic axial angle.
18. Interference figures.
19. Zeolites.
20. Principal minerals of Garnet family.
21. Cryptocrystalline varieties of quartz.
22. Chemistry and physical properties of corundum.

(10 × 2 = 20 marks)

Part C (Paragraph Type Questions)

*Answer any five questions.
Each question carries 6 marks.*

23. Solid solution and exsolution in minerals.
24. Jolly's spring balance method.
25. Optical accessories and their uses.
26. Uniaxial and Biaxial indicatrices.
27. Physical and optical properties of Mica group of minerals.
28. Feldspar group of minerals.
29. Chemistry, mode of occurrence and uses of Zircon and Rutile.
30. Optical and physical properties of Talc and Serpentine.

(5 × 6 = 30 marks)

Part D (Essay Type Questions)

Answer any two questions.

Each question carries 10 marks.

31. With the help of suitable examples explain the important physical properties of minerals dependent upon light and state of aggregation.
32. Describe the petrological microscope and its parts with the help of a neat sketch.
33. Give an account of the Amphibole group of minerals with reference to their mineralogy, structure, chemistry, optical and physical properties modes of occurrence and uses.
34. Describe the mineralogy, structure, chemistry, optical and physical properties, modes of occurrences and industrial uses of the minerals Fluorite and Apatite.

(2 × 10 = 20 marks)